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NASA Guidelines on Report Literature

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NASA Guidelines on Report Literature

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NASA GUIDELINES ON REPORT LITERATURE

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Scope

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AERODYNAMICS OF BODIES — 02 02
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AIRFOIL AND WING AERODYNAMICS — 02 03
Aerodynamics of wings and airfoil shapes and forms, supercritical wing

RELATED TOPICS

Wind Tunnels — 09 01
Wind tunnel and shock tube installations, test programs, and technology

Boundary Layer Technology — 34 01
Boundary layer flow and mechanics, including boundary layer control, combustion control, separation, transition, and turbulence

03 AIR TRANSPORTATION AND SAFETY

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HELICOPTERS AND GROUND EFFECT MACHINES — 03 02
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STOL/VTOL AIRCRAFT — 03 03
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AIRCRAFT NOISE AND SONIC BOOM — 03 05
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CLEAR AIR TURBULENCE — 03 07
Causes, effects, and methods of detection

04 AIRCRAFT COMMUNICATIONS AND NAVIGATION

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See also topics under Subject Group 32, Communications

05 AIRCRAFT DESIGN, TESTING AND PERFORMANCE

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AUXILIARY ELECTRICAL SYSTEMS 05-02
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06 AIRCRAFT INSTRUMENTATION

RELATED TOPIC:

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JET PROPULSION 07-01
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08 AIRCRAFT STABILITY AND CONTROL

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Aerodynamic Characteristics 02-01
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Boundary Layer Technology 34-01
Boundary layer flow and mechanics, including boundary layer control, combustion control, separation, transition, and turbulence.

09 RESEARCH AND SUPPORT FACILITIES (AIR)

WIND TUNNELS 09-01
Wind tunnel and shock tube installations, test programs, and technology. See also Subject Group 02, Aerodynamics.

RELATED TOPIC:

Commercial and General Aviation 03-01
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13 ASTRODYNAMICS

CELESTIAL MECHANICS AND ORBITAL CALCULATIONS 13-01
Mathematical calculations for celestial mechanics, spacecraft orbits and spacecraft and ballistic trajectories.

14 GROUND SUPPORT SYSTEMS AND FACILITIES (SPACE)

SPACECRAFT GROUND SUPPORT 14-01
Launch facilities, control networks, vehicle maintenance and servicing. For spacecraft tracking stations and networks, see topics 17-04 and 32-03.

TEST FACILITIES 14-02
Test ranges, centrifuges, engine test stands, rocket test installations, and reactor test facilities.

SIMULATORS AND SIMULATION 14-03
Solar, space, and environment simulators, vacuum chambers, and simulation programs, methods, and technology.

STERILIZATION 14-04
Spacecraft sterilization, sterilization methods, clean rooms, and contamination control.

RELATED TOPICS:

Wind Tunnels 09-01
Wind tunnel and shock tube installations, test programs, and technology. See also Subject Group 02, Aerodynamics.

Tracking 17-04
Tracking installations, personnel, equipment, and systems using radio, radar, infrared, or optical techniques.

Communication Equipment 32-02
Communication equipment, including radio, microwave, infrared, light and television equipment.

15 LAUNCH VEHICLES AND SPACE VEHICLES

LAUNCH VEHICLES 15-01
Atlas, Saturn, Titan, other large and medium launch vehicles.

SOUNDING ROCKETS 15-02
Upper atmosphere aerology and meteorology probes and other small launch vehicles.

SPACE PROBES 15-03
Lunar and planetary probes, including Pioneer, Ranger, Mariner, Voyager, and deep space probes.

SCIENTIFIC SATELLITES 15-04
Geophysical and astronomical satellites, orbiting observatories, Discoverer and Explorer satellites.

REENTRY VEHICLES 15-05
All vehicles and maneuverable vehicles capable of entering a planetary atmosphere, also decelerators, drogues and other devices used with reentry vehicles, lifting bodies. See also 16-01, Space Transportation and Manned Spacecraft.

U.S.S.R. SPACECRAFT 15-06
All U.S.S.R. spacecraft and programs, manned and unmanned.

RELATED TOPICS:

Spacecraft Ground Support 14-01
Launch facilities, control networks, vehicle maintenance and servicing. For spacecraft tracking stations and networks, see 17-04 and 32-03.

Spacecraft and Aircraft Instrumentation 19-01
Spacecraft and aircraft instruments, gauges, indicators, and instrument systems.

Communication Satellites 32-01
INTELSAT, WESTAR, MARISAT, and other domestic and foreign communication satellites.

Meteorological Satellites 47-01
Nimbus, Tiros, and meteorological data from satellites.

16 SPACE TRANSPORTATION

SPACE TRANSPORTATION AND MANNED SPACECRAFT 16-01
All manned space vehicles, including the Shuttle, Apollo, Skylab, Spacelab, Apollo-Soyuz Test Program, and other orbiting laboratories and manned flights. For U.S.S.R. spacecraft, see 15-06.

17 SPACECRAFT COMMUNICATIONS, COMMAND AND TRACKING

SPACE COMMUNICATIONS 17-01
Reentry, lunar, interplanetary, satellite, and spacecraft communications. Does not include references to Communication Satellites, for which see 32-01.

NAVIGATION SYSTEMS 17-02
Spacecraft and aircraft navigation systems including star trackers, inertial systems, Doppler and stellar navigation; and navigation instruments.

GUIDANCE SYSTEMS 17-03
Spacecraft guidance and control, midcourse guidance and reentry guidance, and spacecraft guidance systems.

TRACKING 17-04
Tracking installations, personnel, equipment, and systems using radio, radar, infrared, or optical techniques.

RELATED TOPICS

Radar Equipment 33-01
Radar types, applications and component parts.

Antennas 33-03
Radar and radio antennas and applications.

See also topics under Subject Group 32, Communications.

18 SPACECRAFT DESIGN, TESTING AND PERFORMANCE

SPACECRAFT ATTITUDE CONTROL AND STABILIZATION 18-01
Attitude control system, stability techniques, and instrumentation.

RENDEZVOUS AND DOCKING 18-02
Rendezvous guidance, rendezvous trajectories and docking techniques.

19 SPACECRAFT INSTRUMENTATION

SPACECRAFT AND AIRCRAFT INSTRUMENTATION 19-01
Spacecraft and aircraft instruments, gauges, indicators, and instrument systems.

SENSORS AND TRANSDUCERS 19-02
Sensing elements used in space vehicles or aerospace services; pressure, temperature, acoustic transducers, etc.

RELATED TOPICS

Navigation Systems 17-02
Spacecraft and aircraft navigation systems including star trackers, inertial systems, Doppler and stellar navigation, and navigation instruments.

Telemetry 32-04
Data transmission and measuring, biotelemetry, telephotometry, and telepsychometry.

Bioinstrumentation 54-05
Biotelemetry, medical electronics, physiological monitoring, biological measurement, and biological data handling.

See also other topics under Subject Group 32, Communications.

20 SPACECRAFT PROPULSION AND POWER

ROCKET ENGINES, NOZZLES AND THRUST CHAMBERS 20-01
Specific engines used in rocket propulsion, nozzle and thrust chamber design, materials, and performance.

AUXILIARY PROPULSION 20-02
Spacecraft propulsion systems other than the main propulsion system (i.e., steering jets, retrorockets, and propulsion units for extravehicular operations).

ELECTRIC PROPULSION 20-03
Propulsion systems by charged electrical particles accelerated by electrical or magnetic fields; includes electromagnetic and electrostatic propulsion.

RELATED TOPIC

Jet Propulsion 07-01
Turbojet, pulsejet, and ramjet propulsion systems including specific engines.

See also topics under Subject Group 44, Energy Production and Conversion.

CHEMISTRY AND MATERIALS

23 CHEMISTRY AND MATERIALS (GENERAL)

CHEMICAL ANALYSIS 23-01
Qualitative, quantitative, X-ray, chromatography, and other analytical techniques.

CHEMICAL PROCESSES AND ENGINEERING 23-02
Chemical processes and specific chemical reactions such as oxidation, nitration, hydrogenation, etc.

LUMINESCENCE 23-03
Chemiluminescence, fluorescence, phosphorescence, bioluminescence, and related topics.

PHOTOCHEMISTRY 23-04
Photolysis, photosynthesis, and actinometry.

RELATED TOPIC:

Biochemistry 51-02
Chemistry of living organisms and physiochemistry.

24 COMPOSITE MATERIALS

COMPOSITE MATERIALS 24-01
Types of composite materials, including laminates, sandwich materials and cermets; properties and uses.

REINFORCED MATERIALS AND FIBERS 24-02
Materials reinforced by inclusions, fiber reinforcement, whiskers, filament wound vessels.

25 INORGANIC AND PHYSICAL CHEMISTRY

CORROSION 25-01
Metal corrosion, stress corrosion, corrosion prevention, and tests for corrosion.

METAL CRYSTALS 25-02
Structure, defects, and technology of metal crystals.

COATINGS 25-03
Types of coatings, properties and uses; coating techniques.

ELECTROCHEMISTRY 25-04
Electrochemical processes, electrolysis, and electrolytic processes.

26 METALLIC MATERIALS

ALUMINUM 26-01
Aluminum, aluminum alloys, compounds and powdered aluminum; properties and uses.

BERYLLIUM 26-02
Beryllium, beryllium alloys and compounds; properties and uses.

LIQUID METALS 26-03
Characteristics, properties, technology, and uses of liquid metals.

STEEL 26-04
Types of steel and stainless steel alloys; properties and uses.

TITANIUM 26-05
Titanium and titanium alloys, properties and uses.

REFRACTORY METALS 26-06
Refractory metals and alloys, and superalloys; properties and uses.

METALLURGY 26-07
Powder metallurgy, sintering, fractography and metallography.

27 NONMETALLIC MATERIALS

PLASTICS 27-01
Specific plastics, thermoplastics, resins, thermosetting plastics, high temperature plastics, silicones and styrenes; properties and uses.

ADHESIVES 27-02
Types of adhesives, properties and uses.

CERAMICS 27-03
Specific ceramics, properties, and uses.

ELASTOMERS 27-04
Specific elastomers, properties and uses.

GRAPHITE 27-05
Graphite, pyrolitic graphite, pyrographic alloy; properties and uses.

POLYMERS 27-06
Types of polymers, properties and uses; polymer chemistry and polymer physics.

28 PROPELLANTS AND FUELS

LIQUID PROPELLANTS 28-01
Cryogenic, hydrogenic, and thixotropic propellants; uses, properties, manufacture, storage and handling; oxidizers and igniters used with liquid propellants.

SOLID PROPELLANTS 28-02
Types, uses, properties; manufacture, storage and handling, propellant grain studies, and oxidizers and igniters used with solid propellants.

ENGINEERING

31 ENGINEERING (GENERAL)

RELATED TOPICS

See specific topics under Subject Groups 32-39.

32 COMMUNICATIONS

COMMUNICATION SATELLITES 32-01
INTELSAT, WESTAR, MARISAT, and other domestic and foreign communications satellites.

COMMUNICATION EQUIPMENT 32-02
Communication equipment, including radio, microwave, infrared, light and television equipment.

COMMUNICATION SYSTEMS 32-03
Types of communication systems; e.g., television, digital, etc., and specific systems; e.g., Defense Communication Systems, Deep Space Network, etc.

TELEMETRY 32-04
Data transmission and measuring biotelemetry, telephotometry, and telepsychometry.

RADIO NOISE 32-05
Studies of radio noise sources, random noise, signal-to-noise ratio, noise reduction, and noise measurement.

COMMUNICATION THEORY 32-06
Information theory, coding automata theory, signal processing, and decision theory.

RELATED TOPICS

Radar Equipment 33-01
Radar types, applications and component parts.

Antennas 33-03
Radar and radio antennas and applications.

See also topics under Subject Group 17, Spacecraft Communications, Command and Tracking.

33 ELECTRONICS AND ELECTRICAL ENGINEERING

RADAR EQUIPMENT 33-01
Radar types, applications, and component parts.

SEMICONDUCTORS AND TRANSISTORS 33-02
Semiconductors and transistors; types, devices, materials, and applications. See also Solid State Devices, 76-01.

ANTENNAS 33-03
Radar and radio antennas and applications.

ELECTRONIC COMPONENTS 33-04
Types, design, applications, packaging, and reliability.

CIRCUITRY 33-05
Circuit theory, production techniques, reliability, protection, and applications. For microcircuits see 33-10, Microelectronics.

ELECTRICAL EQUIPMENT 33-06
Generators, motors, connectors, and insulation; design and application.

AMPLIFIERS 33-07
Types of electronic amplifiers, design, and application. For fluid amplifiers see also 34-03, Fluidics.

FEEDBACK AND CONTROL THEORY 33-08
Systems, techniques, and designs.

ELECTROMAGNETIC RADIATION 33-09
Wave propagation, electromagnetic effects, properties, detection, and application.

MICROELECTRONICS 33-10
Microcircuits, microelectronic devices and components, microminiaturized electronic equipment.

MICROWAVE AND SUBMILLIMETER WAVE TECHNOLOGY 33-11
Microwave research, measurement techniques, generation, modulation, and absorption.

MAGNETISM 33-12
Theory and research, aeromagnetism, ferromagnetism, hydromagnetism, paramagnetism, and thermomagnetism.

RELATED TOPICS

Auxiliary Electrical Systems 05-02
Electric auxiliary power supply systems, distribution systems, components, and applications.

Communication Equipment 32-02
Communication equipment, including radio, microwave, infrared, light, and television equipment.

34 FLUID MECHANICS AND HEAT TRANSFER

BOUNDARY LAYER TECHNOLOGY 34-01
Boundary layer flow and mechanics, including boundary layer control, combustion control, separation, transition, and turbulence.

GAS DYNAMICS 34-02
Applied and theoretical gas dynamics, problem solving, hypersonic and rarefied gas dynamics.

FLUIDICS 34-03
Fluid amplification, fluid logic circuits, and fluid devices.

FLUID FLOW 34-04
Liquid flow, hydromechanics, and cavitation flow; does not include gas or air flow.

COMBUSTION PHYSICS 34-05
Combustion phenomena, kinetics, instability, detonation, theory.

HEAT TRANSFER, BASIC 34-06
Characteristics and studies of various forms of heat transfer, heat dissipation, and heat resistance.

REENTRY HEAT TRANSFER 34-07
Heat transfer problems on reentry and their solution.

THERMAL PROTECTION 34-08
Methods and materials used in thermal insulation and protection and for various types of cooling.

ABLATION 34-09
Ablation studies, ablating materials, and application to reentry vehicles and rocket nozzles.

CRYOGENICS 34-10
Low temperature research. For cryogenic propellants see 28-01.

RELATED TOPICS:

Aerodynamic Characteristics 02-01
Lift, drag, and factors affecting pitch, roll and yaw.

Gas Flow Measurement 35-08
Devices, applications and systems for measuring gas flow.

35 INSTRUMENTATION AND PHOTOGRAPHY

PHOTOGRAPHY 35-01
Cameras and photographic equipment and methods including optical, aerial, and radar photography.

INFRARED TECHNOLOGY 35-02
Infrared devices, including scanners, detectors, filters, cameras, and masers.

INSTRUMENT STANDARDS AND CALIBRATION TECHNIQUES 35-03
Measurement and radiation standards and calibration of instruments.

TEMPERATURE MEASUREMENT 35-04
Heat and temperature measuring devices, applications, and systems.

PRESSURE MEASUREMENT 35-05
Pressure measuring devices, applications, and systems.

DISPLAY SYSTEMS 35-06
Cathode ray tubes and display techniques and principles.

DATA RECORDING 35-07
Data recorders and recording systems and techniques.

GAS FLOW MEASUREMENT 35-08
Devices, applications and systems for measuring gas flow.

RELATED TOPICS:

Navigation Systems 17-02
Spacecraft and aircraft navigation systems including star trackers, inertial systems, Doppler and stellar navigation, and navigation instruments.

Telemetry 32-04
Data transmission and measuring, biotelemetry, telephotometry, and telepsychometry.

Meteorological Instruments 47-05
Types and uses of meteorological instruments.

Bioinstrumentation 54-05
Biotelemetry, medical electronics, physiological monitoring, biological measurement, and biological data handling.

See also topics under Subject Group 19, Spacecraft Instrumentation.

36 LASERS AND MASERS

LASERS AND MASERS 36-01
References to lasers and masers in general, laser theory, and types of lasers and masers.

LASER APPLICATIONS 36-02
Laser communications, laser photography, and laser ranging.

37 MECHANICAL ENGINEERING

BEARINGS AND GEARS 37-01
Types of bearings and gears, uses, materials, and applications.

LUBRICATION AND LUBRICANTS 37-02
Lubrication materials, systems, and applications.

MACHINING 37-03
Machining processes and techniques and machine tools.

FRICTION AND WEAR 37-04
Types of friction, friction measurement and effects, frictionless environment, and wear effects.

SEALS 37-05
Sealants, gaskets, packing, leakage, self-sealing materials, and sealing techniques.

WELDING 37-06
Brazing, bonding, soldering, and welding techniques and processes; weldability of various materials, and properties and characteristics of welds.

METAL FORMING 37-07
Theory, techniques, and processes of metal forming other than machining.

PUMPS 37-08
Pumps, pump seals, and pumping in aerospace technology.

VACUUM TECHNOLOGY 37-09
Vacuum systems, techniques and processes; vacuum testing measurement and material fabrication.

NONDESTRUCTIVE TESTING 37-10
Techniques and processes for the nondestructive testing of materials, including infrared, ultrasonic, and X-ray testing.

TURBOMACHINERY 37-11
Axial flow machines, centrifugal compressors and pumps, gas turbines, turbocompressors, turbine pumps, turbofans, turbogenerators.

38 QUALITY ASSURANCE AND RELIABILITY

QUALITY CONTROL AND RELIABILITY 38-01
Product development, qualitative testing and analysis of materials and structures, and reliability criteria for components and structures.

39 STRUCTURAL MECHANICS

SHELLS 39-01
Shell structures, stresses, loads, buckling and vibration.

STRESSES AND LOADS 39-02
Stresses and loads on launch vehicles, spacecraft, and aerospace structures.

STRUCTURE VIBRATION AND DAMPING 39-03
Vibration and damping in aerospace structures, spacecraft and airframes; panel flutter.

IMPACT PHENOMENA 39-04
Studies of impact phenomena in aerospace structures and components; also micrometeoroid impact damage.

STRUCTURAL FATIGUE 39-05
Fatigue studies and analysis, techniques for aerospace structures and components.

SANDWICH CONSTRUCTION 39-06
Honeycomb, multilayer and laminated fabrication, techniques and structures.

STRESS ANALYSIS 39-07
Stress calculation and analysis of structures.

STRUCTURAL TESTS AND RELIABILITY 39-08
Destructive and nondestructive testing and reliability of aerospace structures.

GEOSCIENCES

42 GEOSCIENCES (GENERAL)

RELATED TOPICS:

See specific topics under Subject Groups 43-48.

43 EARTH RESOURCES

EARTH RESOURCES — 43-01
Earth resources studies, the role of satellites in natural resource development, geology, agriculture, forestry.

GEODESY AND CARTOGRAPHY — 43-02
Geodetic positions, satellite surveying, geodetic applications, mapping techniques, analyzing methods, and mapping systems.

RELATED TOPICS:

Water Resources and Oceanography — 48-01
Water conservation and development; hydrology; remote sensing of floods, snow cover, ice; oceanography, other hydrosphere studies.

Urban Technology and Transportation — 85-01
Application of aerospace technology to the problems of cities; urban development, planning, research, and transportation; rail transportation; rapid transit systems; police services; water and sewage treatment; waste utilization, and land use.

44 ENERGY PRODUCTION AND CONVERSION

ENERGY RESOURCES — 44-01
Production, conversion, transmission, conservation of energy; solar energy conversion; wind power; remote survey of energy resources; hydrogen economy.

FUEL CELLS AND CHEMICAL BATTERIES — 44-02
Electrochemical, biochemical and regenerative fuel cells; silver-cadmium, nickel-oxide and other batteries.

SOLAR SPACE POWER — 44-03
Photovoltaic cells, solar cells, solar energy, absorbing films; solar energy converters and solar power systems.

NUCLEAR AUXILIARY POWER — 44-04
Nuclear auxiliary reactors, isotopic space power, and specific SNAP Systems.

45 ENVIRONMENT POLLUTION

ENVIRONMENTAL POLLUTION CONTROL — 45-01
Applications of aerospace techniques, including remote sensing, to all aspects of air, water, thermal, and environmental pollution; specific pollutants, noise, noise injuries, noise meters, atmospheric composition, water quality.

46 GEOPHYSICS

UPPER EARTH ATMOSPHERE — 46-01
Earth atmosphere above the troposphere; ionospheric composition, phenomena, chemical reactions and satellite measurement.

GEOLOGY AND SEISMOLOGY — 46-02
Earth geology, petrography, and orography; earthquake detection, measuring and recording instruments, and theoretical models.

GEOMAGNETISM — 46-03
Geomagnetic anomaly, fields, latitudes, pulsations, storms, and measuring and data transmitting instruments.

RELATED TOPICS:

Sounding Rockets — 15-02
Upper atmosphere aerology and meteorology probes, and other small launch vehicles.

Meteorological Satellites 47-01
Nimbus, Tiros, meteorological datz from satellites.

Gravitation 90-01
Gravitational theory, effect and fields, equations and potential, antigravity, gravitational collapse, and gravity gradient control of satellites.

Radiation Belts 93-03
Inner and outer radiation belts, Van Allen Belt, artificial radiation belts, and trapped radiation.

47 METEOROLOGY AND CLIMATOLOGY

METEOROLOGICAL SATELLITES 47-01
Nimbus, Tiros, meteorological data from satellites.

WEATHER FORECASTING 47-02
Methods and instruments of weather data acquisition and processing; theory and methods of weather prediction.

MICROMETEOROLOGY 47-03
Smallest scale observation of physical and dynamic occurrences within the surface boundary layer of the atmosphere; includes turbulence, air pollution, launch conditions.

CLOUD RESEARCH 47-04
Types of cloud formation, cloud physics, nephanalysis, and cloud seeding.

METEOROLOGICAL INSTRUMENTS 47-05
Types and uses of meteorological instruments.

RELATED TOPICS:

Upper Earth Atmosphere 46-01
Earth atmosphere above the troposphere; ionospheric composition, phenomena, chemical reactions and satellite measurement.

Sounding Rockets 15-02
Upper atmosphere aerology and meteorology probes and small launch vehicles.

48 OCEANOGRAPHY

WATER RESOURCES AND OCEANOGRAPHY 48-01
Water conservation and development; hydrology; remote sensing of floods, snow cover, ice; oceanography, other hydrosphere studies.

LIFE SCIENCES

51 LIFE SCIENCES (GENERAL)

BIOLOGY (GENERAL) 51-01
Microbiology, ecology, botany, genetics and cytology.

BIOCHEMISTRY 51-02
Chemistry of living organisms and physiochemistry.

52 AEROSPACE MEDICINE

AEROSPACE MEDICINE 52-01
Aerospace medical problems and studies, e.g., toxicity and weightlessness; medical aspects of astronaut performance reaction, and neurophysiology.

CLINICAL MEDICINE 52-02
General medicine, body systems and functions, diseases, and drugs.

PHYSIOLOGICAL FACTORS 52-03
Functions related to body composition, physical performance reaction, and neurophysiology.

BIOLOGICAL RADIATION EFFECTS 52-04
Effects of radiation on the human body and other living organisms.

53 BEHAVIORAL SCIENCES

PSYCHOLOGICAL FACTORS 53-01
Factors related to psychology, psychiatry, individual and group behavior, crew training and testing.

54 MAN/SYSTEM TECHNOLOGY AND LIFE SUPPORT

LIFE SUPPORT SYSTEMS 54-01
Systems that support life in spacecraft, isolation chambers or uninhabitable environments, including space cabin atmosphere, food, water, and waste disposal.

CREW SAFETY AND PROTECTIVE CLOTHING 54-02
Survival techniques, escape, rescue, and protective clothing and equipment, space suits.

HUMAN ENGINEERING 54-03
Design and engineering of devices, equipment, and artificial environments to the requirements of man.

MAN-MACHINE SYSTEMS 54-04
Systems in ewhich man and machine are interrelated.

BIOINSTRUMENTATION 54-05
Biotelemetry, medical electronics, physiological monitors, biological measurement, and biological data handling.

RELATED TOPIC

Cybernetics and Bionics 63-01
Methods of control and communications common to living organisms and machines and those systems that function in the manner of or resembling human systems.

55 PLANETARY BIOLOGY

EXTRATERRESTRIAL LIFE 55-01
Exobiology and detection, simulation, and genesis of life outside earth.

RELATED TOPIC

Sterilization 14-04
Spacecraft sterilization, sterilization methods, clean rooms, and contamination control.

MATHEMATICAL AND COMPUTER SCIENCES

59 MATHEMATICAL AND COMPUTER SCIENCES (GENERAL)

APPLIED MATHEMATICS 59-01
Mathematical applications in physical, biological and aerospace sciences.

DATA PROCESSING 59-02
Automatic source data processing, data handling, conversion and compression.

60 COMPUTER OPERATIONS AND HARDWARE

DIGITAL AND ANALOG COMPUTERS 60-01
Computer hardware, structure, peripheral equipment, and applications; hybrid computers.

AIRBORNE OR SPACEBORNE COMPUTERS 60-02
Computer design for onboard spacecraft or aircraft use.

61 COMPUTER PROGRAMMING AND SOFTWARE

COMPUTER SOFTWARE 61-01
Programming and computer languages, systems analysis, data management.

62 COMPUTER SYSTEMS

RELATED TOPICS

Computer Software 61-01
Programming and computer languages, systems analysis, data management.

Aerospace Management 81-01
Management techniques, cost control, production engineering, personnel management

63 CYBERNETICS

CYBERNETICS AND BIONICS 63-01
Methods of control and communications common to living organisms and machines and those systems that function in the manner of or resembling human systems

64 NUMERICAL ANALYSIS

NUMERICAL ANALYSIS 64-01
Mathematical models, theoretical studies and applications

65 STATISTICS AND PROBABILITY

STATISTICS AND PROBABILITY 65-01
Statistical techniques and applications, probability and reliability theory, probability equations, and problem solving

66 SYSTEMS ANALYSIS

RELATED TOPIC

Computer Software 61-01
Programming and computer languages, systems analysis, data management

67 THEORETICAL MATHEMATICS

PHYSICS

70 PHYSICS (GENERAL)

RELATED TOPICS

See specific topics on Subject Groups 71-77

71 ACOUSTICS

ACOUSTICS 71-01
Acoustic attenuation, simulation, scattering radiation and vibration, hydroacoustics

ULTRASONICS 71-02
Use in medicine and materials research, absorption properties and effects

72 ATOMIC AND MOLECULAR PHYSICS

ATOMIC PHYSICS 72-01
Atomic theory, collision, beams, energy, reactions, and properties

MOLECULAR PHYSICS 72-02
Molecular theory, energy, structure, collision, beams, properties, molecules, and instrumentation

73 NUCLEAR AND HIGH-ENERGY PHYSICS

NUCLEAR PHYSICS 73-01
Nuclear particles, structure, reactions, and force

RADIOACTIVITY 73-02
Measurement, detection, material, waste, fission products, and radioactive elements

RELATED TOPIC

Cosmic Radiation — 53-01
Primary and secondary cosmic radiation, galactic and stellar radiation.

74 OPTICS

OPTICS — 74-01
Optical equipment and technology, electron optics, crystal optics, fiber optics, and optical properties.

LIGHT — 74-02
Light scattering, measurement effects and transmission.

75 PLASMA PHYSICS

PLASMA APPLICATIONS — 75-01
Plasma arc welding, plasma spraying, plasma power source, plasma jet technology.

PLASMA DYNAMICS — 75-02
Plasma theory, conductivity, diagnostics, plasma pinch, plasma sheath, plasma waves, and plasma oscillations.

MAGNETOHYDRODYNAMICS — 75-03
Magnetohydrodynamic theory and applications.

RELATED TOPIC

Astrophysical Plasmas — 90-02
Solar, cosmic, and interstellar plasmas, solar atmosphere, and stellar plasma.

76 SOLID-STATE PHYSICS

SOLID STATE DEVICES — 76-01
Devices using solid state components, diodes, and rectifiers.

SUPERCONDUCTIVITY — 76-02
Superconductivity, superconducting magnets, superconducting transition temperatures, critical temperatures, and critical field curves of superconducting material.

DIELECTRICS — 76-03
Dielectric material including dielectric constant of materials, electric losses and ohmic resistance of compounds, permeability and polarization of dielectric substances and media.

EPITAXIAL DEPOSITION — 76-04
Epitaxial film deposition techniques; electrical properties of epitaxial deposited films and applications.

RELATED TOPICS

Metal Crystals — 25-02
Structure, defects, and technology of metal crystals.

Semiconductors and Transistors — 33-02
Semiconductor and transistor types, devices, materials and applications.

Magnetism — 33-12
Theory and research, aeromagnetism, ferromagnetism, hydromagnetism, paramagnetism, and thermomagnetism.

77 THERMODYNAMICS AND STATISTICAL PHYSICS

RELATED TOPICS

Statistics and Probability — 65-01
Statistical techniques and applications, probability and reliability theory, probability equations, and problem solving.

Molecular Physics — 72-02
Molecular theory, energy, structure, collision, beams, properties, molecules, and instrumentation.

SOCIAL SCIENCES

80 SOCIAL SCIENCES (GENERAL)

RELATED TOPICS

See specific topics in Subject Groups 81-85

81 ADMINISTRATION AND MANAGEMENT

AEROSPACE MANAGEMENT 81-01
Management techniques, cost control, production engineering, personnel management

82 DOCUMENTATION AND INFORMATION SCIENCE

INFORMATION TECHNOLOGY 82-01
Documentation, information processing and retrieval, and information systems

83 ECONOMICS AND COST ANALYSIS

RELATED TOPIC

Aerospace Management 81-01
Management techniques, cost control, production engineering, personnel management

84 LAW AND POLITICAL SCIENCE

WORLD SPACE PROGRAMS AND AEROSPACE LAW 84-01
NASA programs in general, foreign aerospace programs, international cooperation, law related to space and aeronautics, Congressional aerospace hearings

85 URBAN TECHNOLOGY AND TRANSPORTATION

URBAN TECHNOLOGY AND TRANSPORTATION 85-01
Application of aerospace technology to the problems of cities; urban development, planning, research, and transportation; rail transportation, rapid transit systems, police services; water and sewage treatment; waste utilization, and land use

SPACE SCIENCES

88 SPACE SCIENCES (GENERAL)

RELATED TOPICS

See specific topics under Subject Groups 89-93

89 ASTRONOMY

SOLAR ASTRONOMY 89-01
Solar activity, physics, solar telescopes and observatories

STELLAR ASTRONOMY AND COSMOLOGY 89-02
Stellar, galactic astronomy, including radio astronomy; origin and evolution of the universe

METEORS AND METEORITES 89-03
Meteor properties and hazards, micrometeoroids and micrometeorites, comets, interplanetary dust

90 ASTROPHYSICS

GRAVITATION 90-01
Gravitational theory, effect and fields, equations and potential, antigravity, gravitational collapse, gravity gradient control of satellites, geophysical gravitational fields

ASTROPHYSICAL PLASMAS 90-02
Solar, cosmic, and interstellar plasmas, solar atmosphere, and stellar plasma

91 LUNAR AND PLANETARY EXPLORATION

THE MOON — 91-01
Studies of the lunar surface and lunar surface data, lunar interior, lunar environment, spacecraft and vehicles used in exploration, specific projects, and lunar landings.

PLANETARY SCIENCES AND EXPLORATION — 91-02
Planetary composition, surfaces, atmospheres, and environment, spacecraft and vehicles used in planetary exploration.

RELATED TOPICS

Space Probes — 15-03
Lunar and planetary probes, including Pioneer, Ranger, Mariner, Voyager, and deep space probes.

Astrophysical Plasmas — 90-02
Solar, cosmic, and interstellar plasmas, solar atmosphere, and stellar plasma.

92 SOLAR PHYSICS

RELATED TOPIC

Solar Astronomy — 89-01
Solar activity, physics, solar telescopes and observatories.

93 SPACE RADIATION

COSMIC RADIATION — 93-01
Primary and secondary cosmic radiation, galactic and stellar radiation.

SOLAR RADIATION AND ACTIVITY — 93-02
Solar radiation, observation, instrumentation, hazards to space flight, protection from solar radiation, solar storms, solar flares, solar winds, and sunspots.

RADIATION BELTS — 93-03
Inner and outer radiation belts, Van Allen Belt, artificial radiation belts, and trapped radiation.

NASA-Langley, 1978

90%

END